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(71)Applicant : FUJI XEROX CO LTD

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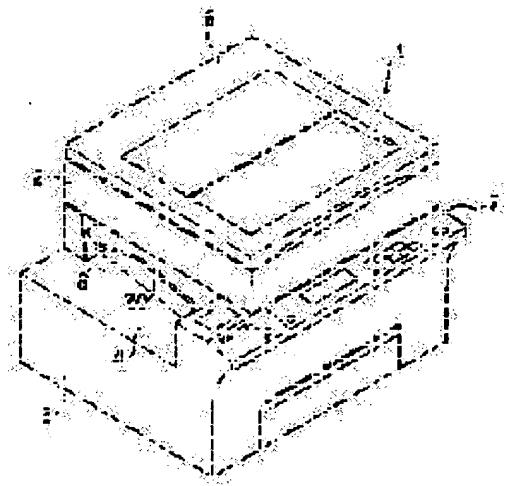
(72)Inventor : MINEZAKI SATORU

(54) IMAGE FORMING DEVICE

(57)Abstract:

PURPOSE: To enable a recording paper sheet discharged on a recording paper sheet discharging portion to be seen well by deviating the upper side portion higher than the recording paper sheet discharging portion from the lower side portion including the recording paper sheet discharging portion so as to be formed into a step.

CONSTITUTION: In an image forming device 1 wherein an image reading portion 2 and a recording paper sheet forming portion 3 are respectively arranged up and down and a recording paper sheet discharging portion 4 formed into a space is provided between both portions thereof, the recording paper sheet discharging portion 4 is partially exposed by deviating the upper side portion higher than the recording paper sheet discharging portion 4 from the lower portion including the recording paper sheet discharging portion 4 so as to be formed into a step.



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CLAIMS

[Claim(s)]

[Claim 1] Image formation equipment characterized by having arranged an image read station and the recording paper creation section up and down, to have been able to shift the part of the bottom which contains the recording paper discharge section for the part above the recording paper discharge section in a completely different class in the image formation equipment which comes to prepare the space-like recording paper discharge section between both this part, and exposing a part of recording paper discharge section.

[Claim 2] Image formation equipment according to claim 1 characterized by forming a control panel in the edge by the side of the recording paper creation section.

[Claim 3] Image formation equipment according to claim 1 characterized by having prepared the discharge tray which receives the recording paper discharged from a recording paper exhaust port in recording paper discharge circles, and forming a stopper in the location by the side of the back of a body corresponding to recording paper size at this discharge tray.

[Claim 4] Image formation equipment according to claim 3 characterized by making a discharge tray and the base of the recording paper discharge section estrange.

[Claim 5] Image formation equipment according to claim 3 characterized by making it win popularity in the edge section when constituted from an ingredient which has elasticity like a Mylar as a stopper, making it this bend when the detail paper of larger size than the location of a stopper is discharged, and working as a stopper.

[Claim 6] Image formation equipment according to claim 3 characterized by preparing the bending section for rigid grant in the tip side except deflection root Motobe, this Mylar, when constituted from an ingredient with elasticity like a Mylar as a stopper.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the digital image formation equipment having functions, such as them or facsimile, such as an electronic copying machine and a hot printing type copying machine, and a printer.

[0002]

[Description of the Prior Art] In image formation equipments, such as the above-mentioned electronic copying machine, it is constituted as equipment which combined an image read station and the recording paper creation section with one, the reflected light of the image of the manuscript read in the image read station is transmitted to image support, such as a photo conductor drum prepared in the recording paper creation section, and an electrostatic latent image is formed in this image support. The means forming of the toner image by the electrophotography method, a means to imprint the toner image in a form, and the anchorage device are formed in the perimeter of said image support, the form which supports a toner image is established through an anchorage device, and it enables it to obtain the recording paper.

[0003] In a common electronic copying machine which was mentioned above, as shown in JP,2-231324,A etc., it is constituted, for example. In said conventional electronic copying machine, in order to have stationed the image read station in the upper part of the body of equipment, to have prepared the recording paper creation section in the lower part of the image read station and to supply a form to this recording paper creation section, the feed section which arranges two or more medium trays in the lower part of the body of equipment is prepared. The light which scanned the image of a manuscript is transmitted to a direct photo conductor drum, and it consists of above-mentioned electronic copying machines as equipment using the method which writes in an image. On the other hand, in an image read station, the information which scanned the manuscript is outputted as a digital signal, and the device which forms an electrostatic latent image in a photo conductor drum etc. using the write-in means by the laser beam in the detail-paper creation section may be established.

[0004] Although it constitutes from an electronic copying machine of the above-mentioned digital method like the case of facsimile so that processing of a picture signal may be operated, as the recording paper creation section, the device which creates the recording paper using a digital method is established, for example like the laser beam printer shown in JP,1-314256,A. As mentioned above, also in the equipment which combined the image read station and the recording paper creation section of a digital method, the recording paper can be created like the case of an optical electronic copying machine using the information which scanned the image of a manuscript. Moreover, besides using only as an electronic copying machine, it uses as facsimile, and it can connect with a computer and the image formation equipment using the above-mentioned digital method can be used as a printer. And an electronic copying machine, a laser beam printer, and the function of facsimile shall be used for arbitration with the image formation equipment which gave a compound function which was mentioned above.

[0005] As mentioned above, when it constitutes image formation equipment combining the image read station and the detail-paper creation section of a digital method, the body of equipment can be constituted as comparatively compact equipment, in order to use the device of a digital method. Moreover, even when equipping the feed section with a sheet paper cassette, a medium tray, etc., it enables it to be equipped with a sheet paper cassette etc. from the front-side of equipment so that it may be made above-mentioned JP,2-231324,A etc. in order to supply a form towards the recording paper creation section. And while being able to lessen the installation tooth space of image formation equipment compared with the device which detaches and attaches the sheet paper cassette from a flank by having constituted form hold equipments, such as a sheet paper cassette, so that it could detach and attach from the front-side of the body of image formation equipment, it becomes possible to raise the operability of equipment.

[0006] However, as mentioned above, even when it constitutes image formation equipment using a digital method, it

will be required to make the flank of the body of equipment project and to arrange the recording paper discharge section for making the recording paper discharge, and the tooth space of the discharge tray will be used too much. Moreover, there are many cases where the device in which the form supplied from a sheet paper cassette etc. is conveyed in the recording paper creation section through the form conveyance way arranged to the flank of the body of equipment is constituted from conventional image formation equipment. And in order to maintain to each part material which constitutes image formation equipment, the closing motion door member is arranged to the flank of the body of equipment for processing of the jam paper in a form conveyance way etc.

[0007] Therefore, in the equipment which prepared the closing motion door etc. in the flank of the body of equipment, to install image formation equipment is needed in the condition of providing an allowances tooth space also for both sides, for closing motion of the door. And even when arranging other equipments etc. on both sides of the above-mentioned image formation equipment, each equipment, such as it, can be arranged in the condition of having been close, and will use many useless space for a business space etc. When other equipments etc. are made to approach the both sides of image formation equipment and it has arranged to it, in case it maintains to the image formation equipment, it is necessary to move other equipments or to move image formation equipment, and there is a problem that a complicated activity is required.

[0008] In order to solve such a problem, prepare space between an image read station and the recording paper creation section, and it is made to make the space section discharge the recording paper, and while being able to be made to lessen the tooth space which image formation equipment occupies, there is equipment which enables it to perform a maintenance etc. from a front-side to each device of the image formation equipment using a digital method.

[0009] Such image formation equipment is shown in drawing 1, arranges image read station a and the recording paper creation section b up and down, arranges the space-like recording paper discharge section c between this image read station a and the recording paper creation section b, and constitutes the device which turns to the recording paper discharge section c the recording paper created by the recording paper creation section b, and discharges it from the recording paper exhaust port d. Moreover, the actuation means e for controlling the above-mentioned image read station a and the recording paper creation section b is arranged to the front-side of equipment, and in order to make the front-side of each equipment discharge the recording paper towards arranging a closing motion means or the recording paper discharge section c, the form conveyance way in the recording paper creation section b is formed in the front-side.

[0010] It enables it to perform a maintenance etc. only from a before [the body of equipment] side by this. And the recording paper discharge section c can be arranged into the space part between image read station a and the recording paper creation section b. Therefore, the equipment in the condition that there is no lobe in the both sides of the body of equipment can be constituted, and since it becomes possible to arrange in the condition of having made other equipments close to the both sides of image formation equipment, it can make it possible to use a business space etc. effectively.

[0011]

[Problem(s) to be Solved by the Invention] However, as described above, in order to lessen the tooth space which image formation equipment occupies, the recording paper was discharged in the body, and if it was in the image formation equipment which secured sufficient tooth space so that it could be taken out easily, since the recording paper discharge section for discharging the recording paper was in a body, there was a fault that discharge paper did not appear from a copy operator's location. Moreover, since there was nothing that is called the discharge tray which receives the recording paper and discharge deposition was carried out on a direct discharge section base, the recording paper discharge section c in the above-mentioned image formation equipment had the fault that taking out this discharged recording paper will do very much, and it will stuff the recording paper into a discharge **** side by ***** and the failure.

[0012] While enabling it for the recording paper of this invention which was made in order to remove and improve this fault, could shift the **** [section / recording paper discharge] section in a completely different class to the bottom section containing the recording paper discharge section, and has been discharged on the recording paper discharge section to be clearly seen In case it is easy to take out the recording paper discharged by the recording paper discharge section and the recording paper takes out, it aims at offering the image formation equipment which enabled it to prevent stuffing this into a back side accidentally.

[0013]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the image-formation equipment concerning this invention arranges an image read station and the recording paper creation section up and down, and has the composition in which the part of the bottom which contains the recording paper discharge section for the part above the recording paper discharge section could be shifted in a completely different class, and a part of recording paper

discharge section exposed in the image-formation equipment which comes to prepare the space-like recording paper discharge section between both this part. And the control panel is formed in the edge by the side of the recording paper creation section. Moreover, in the above-mentioned image formation equipment, the discharge tray which receives the recording paper discharged by recording paper discharge circles from a recording paper exhaust port is prepared, and it has the composition of having formed the stopper in the location by the side of the back of a body corresponding to recording paper size at this discharge tray. And the above-mentioned discharge tray and the base of the recording paper discharge section are made to have estranged. Constitute from an ingredient which has elasticity still like a Mylar as a stopper, when the detail paper of larger size than the location of a stopper is discharged, it is made for this to bend, and when working as a stopper, popularity is won in the edge section. And when constituted from an ingredient with elasticity still like a Mylar as a stopper, the bending section for rigid grant is prepared in the tip side except deflection root Motobe, this Mylar.

[0014]

[work --] for The recording paper discharged by the recording paper discharge section can see the part from the upper part. Moreover, in the recording paper discharge section, the above-mentioned recording paper is discharged on a discharge tray, and is easily picked out from this discharge tray. Moreover, while depositing tidily the recording paper discharged on this discharge tray with a stopper, being pushed into the back side of the body of equipment is prevented.

[0015]

[The example of fruit **] The example of this invention is explained below based on drawing 2 . Image formation equipment 1 is constituted as equipment in the condition of having piled up the image read station 2 and the recording paper creation section 3 up and down, among Ryobe 2 and 3, space is constituted, the recording paper discharge section 4 is formed at this part, and opening of the recording paper exhaust port 5 which stands in a row in one flank of this recording paper discharge section 4 at the above-mentioned recording paper creation section 3 is carried out.

[0016] In the above-mentioned image read station 2, the device which sets a manuscript to the upper part of the body of equipment, and scans the image of a manuscript like ordinary image read stations is established, and the platen covering 6 for carrying out press maintenance of the manuscript is formed. On the other hand, the control panel 7 is arranged by the recording paper creation section 3 on the same field as the recording paper discharge section 4, and, thereby, actuation of the above-mentioned image read station 2 and recording paper creation section 3 grade can be controlled now.

[0017] A part of recording paper discharge section 4 of the above-mentioned image read station 2 from which only L1 is back shifted from and the front face is constituted by the top face of the recording paper creation section 3 is visible from the upper part to the lower recording paper creation section 3. However, it is discharged to the recording paper discharge section 4 of a lever, and an operator can see the recording paper 8 from the upper part as it is again.

[0018] In the image formation section arranged inside the recording paper creation section 3 as shown in drawing 4 , like the case of a common laser beam printer, the image formation equipment 1 of the above-mentioned configuration is written in to the photo conductor drum 9, arranges equipment 10, it makes a laser beam output, irradiates the laser beam at the photo conductor drum 9, and is made to write in an image with the digital signal inputted from the image read station 2. Moreover, around the above-mentioned photo conductor drum 9, an electrification machine, a developer 11 and cleaning equipment 12, and the imprint corotron 13 are arranged like the case of the image formation device which used the electrophotography method. And the photo conductor drum 9 is uniformly electrified with an electrification vessel, it writes in with write-in equipment 10, and an electrostatic latent image is formed, a toner is supplied from a developer 11 to the electrostatic latent image, a toner image is formed, and a form is made to imprint the toner image by discharge of the imprint corotron 13. 14 is a discharge roller.

[0019] Moreover, in order to send a form towards the above-mentioned image formation section, in the above-mentioned recording paper creation section 3, the feed section 15 is arranged in the lower part of equipment. The form sent out towards the form conveyance way of the feed section 15 to the recording paper creation section 3 doubles timing with the toner image formed in the point and the photo conductor drum 9 of a form of REJIRORA 16 arranged at the direct anterior part of the image imprint section from the photo conductor drum 9, and is sent out. And a toner image is imprinted in a form by discharge of the imprint corotron 13, the form which supports the toner image is established through an anchorage device 17, the recording paper is created, and it is made to be discharged from the recording paper exhaust port 5 towards the recording paper discharge section 4 through the discharge roller 14.

[0020] Differing from the above-mentioned example which shows other examples of this invention and was shown by drawing 2 in this example uses as a front-side right-hand side in the example shown by drawing 2 , and a part of recording paper discharge section 4 of drawing 3 on the recording paper creation section 3 is [a thing] visible from the left-hand side of the upper image read station 2.

[0021] In drawing 2, 20 is the discharge tray prepared in the recording paper discharge section 4 towards the recording paper exhaust port 5 of this. The end section and the eject direction other end which show this discharge tray 20 to drawing 5, and counter the recording paper exhaust port 5 contact the top face of the recording paper discharge section 4, and other edges incline upwards from the end section, and are estranged from the top face of the recording paper discharge section 4. Moreover, the side attachment wall 21 is set up by the back side edge section of this discharge tray 20. And extraction and insertion of this discharge tray 20 is attained to the recording paper discharge section 4.

Moreover, notch 20a for recording paper drawing is prepared in the near side of this.

[0022] Two or more stoppers 22 are formed in the discharge side of the above-mentioned discharge tray 20. This stopper 22 is formed at a time in the location which carries out several mm (for example, about 5mm) alienation, and corresponds to the back side edge edge of the recording paper 8 of each size (A6, A5, B5, A4, B4, A3) discharged from the recording paper exhaust port 5 in two eject directions, respectively, as shown in drawing 6. the slit 23 prepared in the discharge tray 20 as each above-mentioned stopper 22 was constituted from this example by the Mylar with a thickness of 0.1mm and each of this stopper 22 was shown in drawing 8 (a) -- the side front from a background -- and it inclined in the eject direction, and the insertion protrusion was carried out and root Motobe located in that background has fixed with the double-sided tape etc. Respectively, although each above-mentioned stopper 22 may be each piece of a Mylar, as a dotted line shows, it is good for an eject direction in both the things of the same location to drawing 6 as for one.

[0023] According to this configuration, as shown in drawing 6, registration of the near side is carried out, it is discharged, contact guidance of the edge by the side of each back is carried out at the stopper 22 corresponding to each, and the detail paper 8 of each size discharged from the detail-paper exhaust port 5 is discharged tidily. At this time, as shown in drawing 8 (b) and drawing 10, it bends, and the stopper 22 of a near side deforms, and does not serve as resistance at the time of discharge from the corresponding recording paper.

[0024] While forming in the shape of a taper as shown in drawing 9 in order to improve the reinforcement as a stopper of the above-mentioned stopper 22, bending section 22a is prepared in the edge by the side of the back, and the rigidity is made high. In addition, this bending section 22a is not prepared in a marginal overall length, but the part in which only L2 does not have bending (for example, about 5mm) is made from the protrusion root. This is for having to bend easily, when the form of large size comes.

[0025] Although the discharge side of the discharge tray 20 explained in the above-mentioned example was made into the shape of a flat and illustrated, as shown in drawing 11, in order to prevent adsorption of the detail paper by static electricity, a rib 24 may be formed in this discharge side like a common discharge tray. In this case, a stopper 22 is located between this rib 24, and serves as storage space of a stopper including the recess of the bending part when bending with the recording paper 8.

[0026] As shown in drawing 12, it is shown to the recording paper 8 discharged on the discharge tray 20 to the back side edge edge at a stopper 22, and it deposits it tidily. And this recording paper 8 is collectively taken out from the recording paper discharge section 4. At this time, drawing of the recording paper 8 from this discharge tray 20 is easily performed by estranging the discharge tray 20 from the top face of the recording paper discharge section 4. Moreover, although the recording paper 8 is accidentally stuffed into a back side at this time, the recording paper 8 does not enter to a back side any more with a stopper 22, and it can take out in comfort.

[0027] Although the above-mentioned example showed the example which constituted the stopper 22 from a Mylar, stopper 22b is formed in tabular [of the rigid bodies, such as plastics,], this is supported free [rotation] to discharge tray 20b, a tip side projects with the dead weight 25 formed in the base of this, a condition is maintained, ***** is carried out under the weight of paper, and you may make it draw, as shown in drawing 13 (a) and (b).

[0028]

[Effect of the Invention] According to this invention, by the ability having shifted the **** [section / 4 / recording paper discharge] section in a completely different class to the bottom section containing the recording paper discharge section 4, the recording paper 23 discharged on the recording paper discharge section 4 can see well from the bottom, and can always grasp the discharge situation proper.

[0029] Moreover, in case according to this invention the recording paper 23 discharged by the above-mentioned recording paper discharge section 4 drawing-comes to be easy and this recording paper 23 moreover takes out, it becomes without stuffing this into a back side accidentally, and the drawing activity of the recording paper 23 can be done easily.

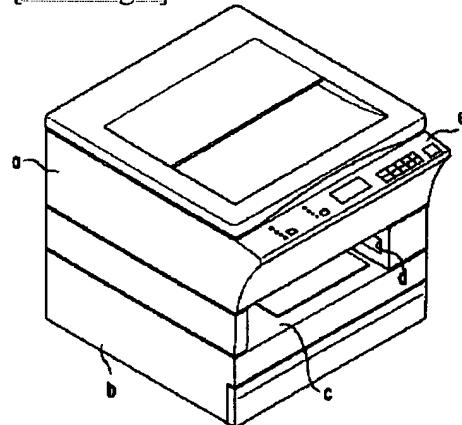
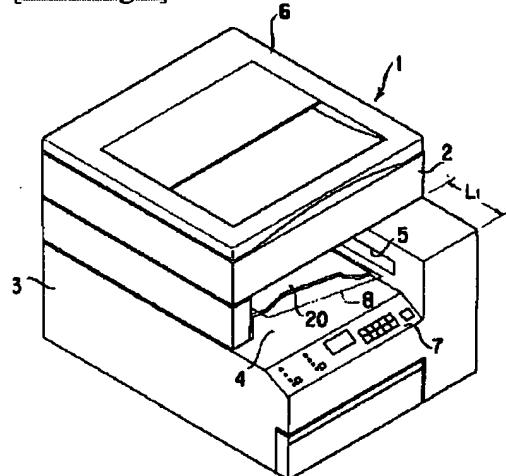
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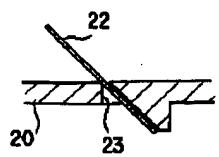
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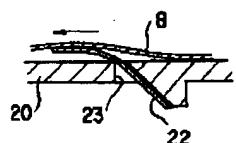
DRAWINGS

[Drawing 1]**[Drawing 2]****[Drawing 8]**

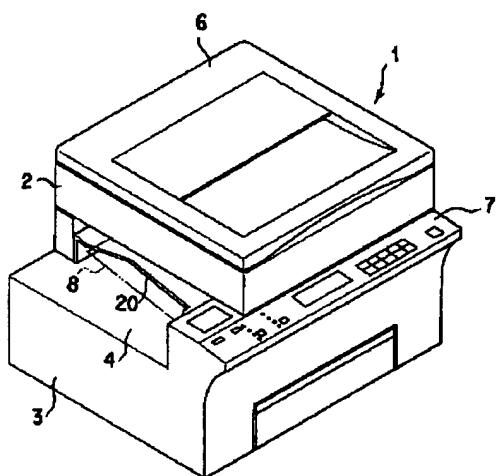
(a)



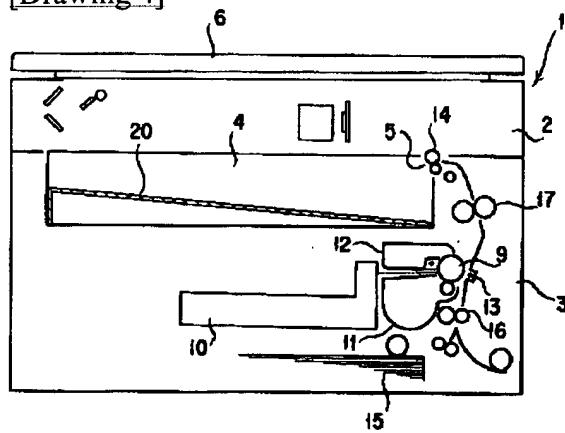
(b)



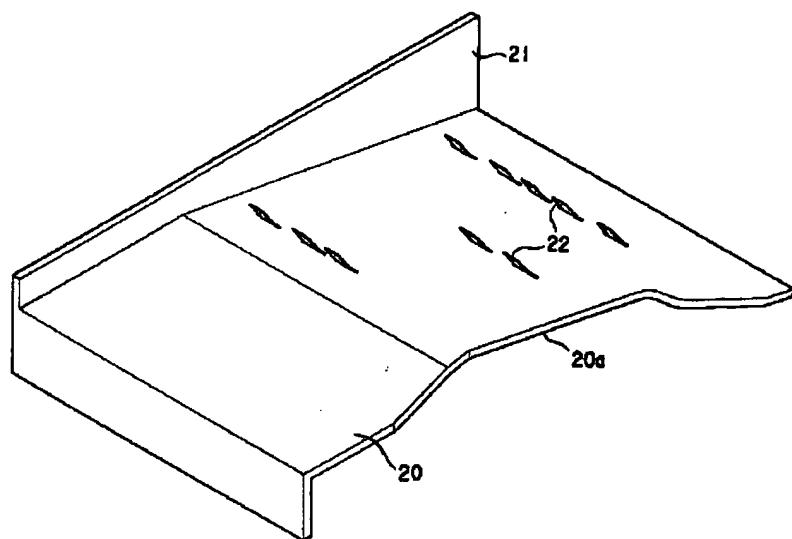
[Drawing 3]



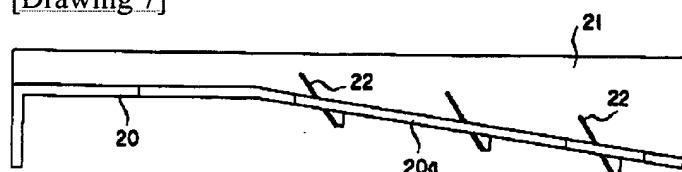
[Drawing 4]



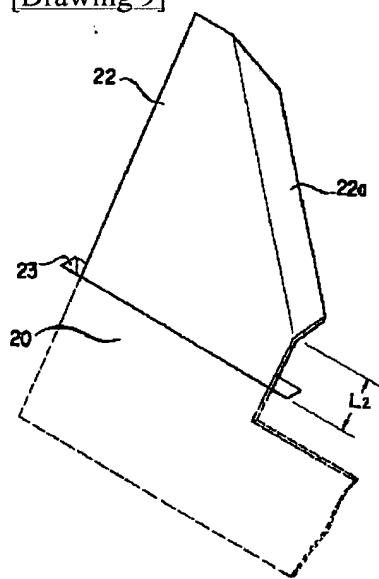
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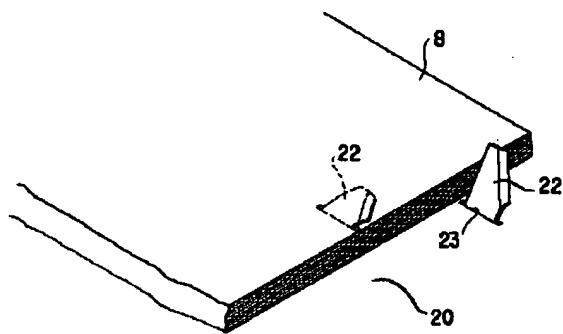
[Drawing 7]



[Drawing 9]

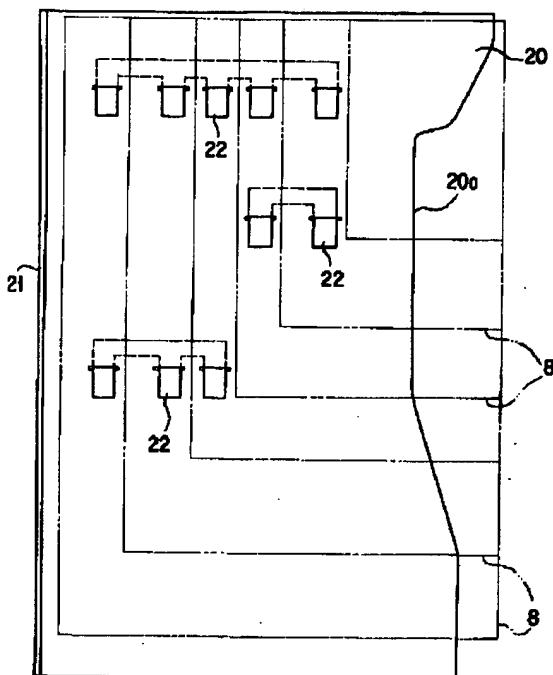


[Drawing 10]

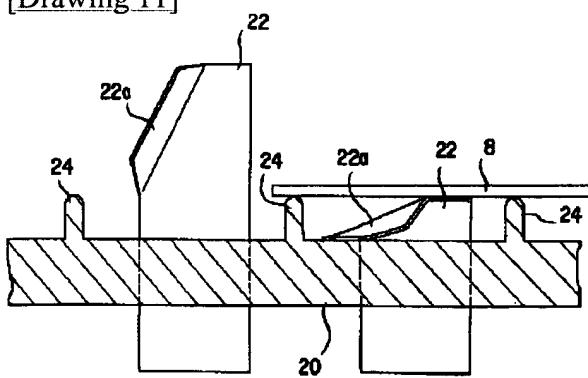


[Drawing 6]

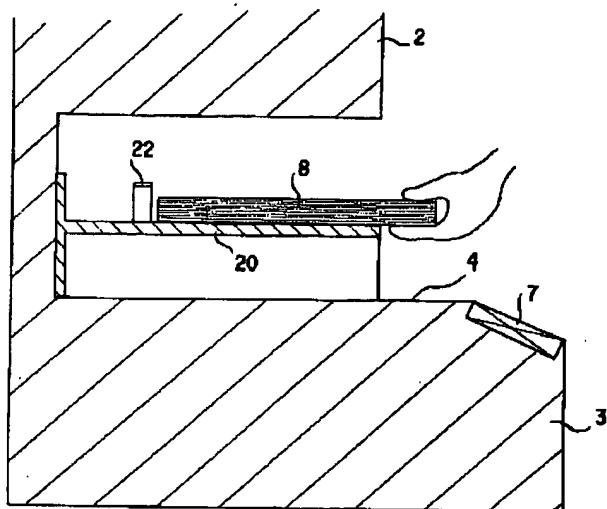
A₃ A₄ A₅ A₆
B₄ B₅



[Drawing 11]

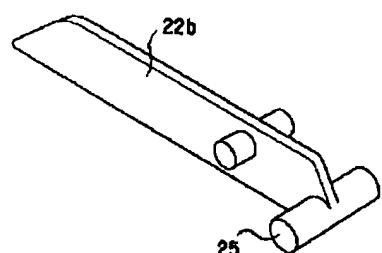


[Drawing 12]

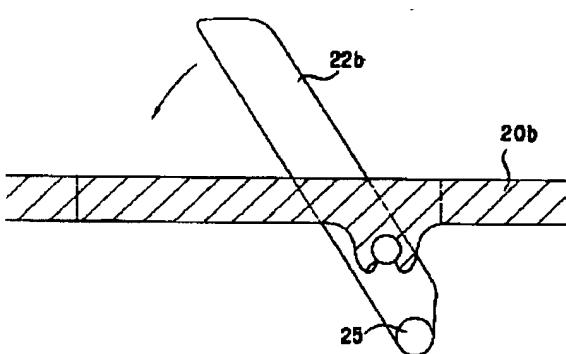


[Drawing 13]

(a)



(b)



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